



Third West Weekly Report Shepherd, Michael

Joyce Ackerman, 'Craig Barnitz (cbarnitz@utah.gov)' 11/09/2011 02:18 PM

Hide Details

From: "Shepherd, Michael" < Michael. Shepherd@PacifiCorp.com>

To: Joyce Ackerman/R8/USEPA/US@EPA, "'Craig Barnitz (cbarnitz@utah.gov)" <cbarnitz@utah.gov>

#### 6 Attachments











Weekly Reports 10-31-11 through 11-04-11.pdf Third West Weekly Log 2011-44.pdf 223514-1.pdf 223662-1.pdf 223762-1.pdf



223763-1.pdf

Joyce & Craig,

Attached are the reports for the week of October 31, 2011.

All air monitoring results came back negative.

No monitoring took place on November, 1, 2011 due to weather. No work was done this day.

Please let me know if you have any questions.

Thanks,

Mike Shepherd Project Manager **Rocky Mountain Power - Major Projects** 801.220.4584 Office 801.631.1310 Cell 801.220.2797 Fax michael.shepherd@pacificorp.com



November 9, 2011

Laboratory Code:

**RES** 

Subcontract Number:

NA

Laboratory Report: Project # / P.O. #

RES 223762-1 None Given

Project Description:

3rd West Sub Station

RMP

David Roskelley R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 223762-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr

President

#### RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

#### TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

**RES Job Number:** 

RES 223762-1

Client:

R & R Environmental

Client Project Number / P.O.: None Given

**Client Project Description:** 

3rd West Sub Station RMP

Date Samples Received:

**November 7, 2011** 

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

**Date Samples Analyzed:** 

November 7, 2011

Client ID Number	Lab ID Nu	mber	Area Analyzed	Air Volume Sampled	Number of Asbestos Structures Detected	Analytical Sensitivity	Asbestos Concentration	Filter Loading
			(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)
3W-110411-E	EM	819882	0.0770	1018	ND	0.0049	BAS	BAS
3W-110411-S	EM	81988 <b>3</b>	0.1100	241	ND	0.0145	BAS	BAS
3W-110411-N	EM	819884	NA	0	NA			
3W-110411-W	EM	819885	0.0880	9 <b>73</b>	ND	0.0045	BAS	BAS

NA = Not Analyzed

Filter Material = Mixed Cellulose Ester

ND = None Detected

Filter Diameter = 25 mm

BAS = Below Analytical Sensitivity
Average Grid Opening in mm<sup>2</sup> = 0.011

Effective Filter Area = 385 sq mm

07:33:03 -07:00

DATA QA



Project: 3rd West Sub Station		Date: 10/31/11					
Location:	3rd West, 1st South, SLC		Jo	b Nu	ımber:		
Survey Conducted By: <u>lustin Kargis</u>			T	itle:			
		In Compliance	Out of Compliance	N/A	Corrective Action Taken and		
Standard	Title				Date		
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			x			
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			x			
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	x					
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			x			
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toe boards shall be installed.			x			
1926.100 (a)	Head protection, where there is a possible danger of head injury.	x					

Standard	Title	[] In Compliance	Out of Compliance	N/A	Corrective Action Taken and Date
1926.652 (a) (1)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			x	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.	х			
1926.20 (b)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			x	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toe boards.			x	·
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			x	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			x .	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			x	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			x -	
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	х			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title		$\Box$	$\Box$	Date
1926.451 (a)	Scaffolding shall have guardrails and toe boards when more than 10 feet high and when less than 45 inches of work space.			<b>x</b>	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			x	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	x			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			x	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			х	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			х	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	х	,		
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.			х	,
1926.102 (a) (1)	Eye and face protection shall be provided.	x			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	х			
1926.350 (a) (9)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			х	

Standard	<i>Tit</i> le	In Compliance	Out of Compliance	N/A	Corrective Action Taken and Date
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			х	
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	x			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			х	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.			x	
1926.451 (a) (2)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.			x	
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			x	
1926.404 (f)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	x	·		
1926.556 (b)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.			x	,
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			x	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				<i>Da</i> te
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.		•	х	
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	x			
1926.451 (a)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			x	
1926.550 (b)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			х	

Newman continued excavation and earth work in S. E. zone. Continued to fill and compact.

CVE fabricators tied rebar on stem forms.

4 pumps at compass points monitored air throughout the day.





### 3<sup>RD</sup> WEST SUBSTATION REMEDIATION PROJECT

# **HEALTH SAFETY MANAGER (HSM)**

		DAILY CHECKLIST
DATE	E:	10/31/11
G	eneral	
		Work area Health and Safety Inspection
N.A		Review and if necessary update Activity Hazard Analyses (AHA) based on planned site
147	1	activities for the day
N.	4	Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior
147	•	to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
NA	<b>A</b>	Site hazard and safety instruction for all first time employees, contractors or visitors
NA NA		Complete Employee Meeting Record Form B (where applicable
NA NA		Document required Respirator Training completion with Form H
NA	٦.	Record times and numbers of dump trucks and trailers as they leave the site with
1A		contaminated material.
NA		Confirm return of waste material manifest documents for each load with site
1/1		manager.
NA	Comp	lete all CSHASP Forms (for applicable activities planned for that day)
1/1	NA	Illness/Injury Report Form A
	NA	Site-Specific Training Record Form C
	NA	Hot Work Permit Form D
	NA	Trench/Evacuation Permit Form E
	NA	Combined Space Entry Permit From F
	NA	Exclusion zone operations are practiced as instructed.
		NA Decontamination unit is working properly.
		NA Workers are using decontamination unit as instructed.
		NA Workers use personal protective equipment properly.
_		
		Set air samples at cardinal compass points around exclusion zone. Check
_		throughout the day to ensure proper operation.
$\overline{\mathbf{Q}}$		Observe control measures for dust and fugitive materials i.e. watering excavation sites and
_		track out prevention.
Ø		Review sign-in/sign-out log throughout and at the end of the workday.
		Secure the site at the end of the workday
<u>Sa</u>	mpling	
NA	Soil C	Confirmation sampling for any newly excavated areas
<u> </u>		Stationary Air Monitoring during contaminated soil removal around the perimeter of the
_		exclusions zone
N.	A	Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil
		removal
N	A	Digitally photograph each sample location and at any place field sampling personnel
		determined necessary





NA Electronically file photo files into the on-site database  $\mathbf{V}$ Complete Field Documentation  $\checkmark$ Field Sample Data Sheets (FSDS) Logbook NA On-site computer database Label each sample media with a unique number  $\checkmark$ Seal sample(s) in zip lock plastic bags Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental  $\sqrt{\phantom{a}}$ Samples NA Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees NA Electronically file sample reports into on-site database



Project: 3rd West Sub Station  Location: 3rd West, 1st South, SLC  Survey Conducted By: Justin Kargis			Date: <u>11/01/11</u>				
		Job Number:					
			Ti	itle:_			
		In Compliance	Out of Compliance	N/A	Corrective Action Taken and		
Standard	Title		$\Box$		Date		
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			x			
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			x			
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.			x			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			x			
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toeboards shall be installed.			x			
1926.100 (a)	Head protection, where there is a possible danger of head injury.	х					

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title	口	$\Box$		Date
1926.652 (a)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			х	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.	x			
1926.20 (b) (1)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			x	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toeboards.			<b>x</b>	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			х	
1926.25 (a)	<b>D</b> ebris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.	:		x	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			x	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.	•		х	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			x	
1926.403 (b)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.			х	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a)	Scaffolding shall have guardrails and toeboards when more than 10 feet high and when less than 45 inches of work space.			x	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			х	_
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	х			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			x	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	,
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			x	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.			x	
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.			x	
1926.102 (a) (1)	Eye and face protection shall be provided.	x			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.			x	
1926.350 (a) (9)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			х	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			Х	
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.			x	٠.
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			х	•
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.			х	
1926.451 (a)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.			x	
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			x	
1926.404 (f) (7)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer of the tool is double insulated.			х	•
1926.556 (b)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.			x	
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			х	

·		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			х	
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	х			
1926.451 (a)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			x	
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			x	

<u>Inclement weather with strong winds and substantial precipitation throughout the day hindered created unfavorable work conditions.</u>

CVE arrived on site and waited until about 8:45 for weather to pass.

All personnel had departed and site was secured by 10 am.



Project: 3rd West Sub Station  Location: 3rd West, 1st South, SLC  Survey Conducted By: 1ustin Kargis		Date: 11/02/11  Job Number:  Title:											
										In Compliance	Out of Compliance	N/A	Corrective Action Taken and
								St <i>a</i> ndard	Title				Date
1926.59	Hazard Communication <b>P</b> rogram, List of Chemicals, <b>T</b> raining, MSDSs.	·		х									
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			х									
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	x											
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			х									
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toe boards shall be installed.			x									
· ·	III d. and a discount beautiful and in a second	l											

1926.100 (a)

danger of head injury.

Standard	Title	In Compliance	Out of Compliance	N/A	Corrective Action Taken and Date
1926.652 (a) (1)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			x	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.	x			
1926.20 (b)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			х	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toe boards.			x	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			x	
1926.25 (a)	<b>D</b> ebris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			x .	·
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			x	·
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k)	Excavations, protective systems, inspected daily by a competent person and as needed.			x	
1926.403 (b) (2)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	x			,

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title		$\Box$	<i>□</i> .	Date
1926.451 (a)	Scaffolding shall have guardrails and toe boards when more than 10 feet high and when less than 45 inches of work space.			х	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			x	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	х			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			x	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			<b>x</b> ,	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			x	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	x			
1926.150 (c)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.			х	
1926.102 (a) (1)	Eye and face protection shall be provided.	x			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	x			
1926.350 (a)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			х	,

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			Х	
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	x		i	
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			х	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.			x	
1926.451 (a)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.			x	
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			х	:
1926.404 (f)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	x			
1926.556 (b)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.			х	
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			х	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title .		$\Box$		Date
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			х	
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	x			
1926. <b>4</b> 51 (a)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			x	
1926.550 (b)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			х	

Newman continued excavation and earth work in S. E. zone. Continued to fill and compact.

CVE fabricators worked on and set some pier form on spread footings.

Scott Collard, Mike Shepherd on site in the morning to discuss upcoming schedule over the next few months.

4 pumps at compass points monitored air throughout the day.



NA

determined necessary



#### 3<sup>RD</sup> WEST SUBSTATION REMEDIATION PROJECT

# **HEALTH SAFETY MANAGER (HSM)**

	DAILY CHECKLIST
DATE:	11/02/11
Canana	
<u>General</u> ☑	
<del></del>	Work area Health and Safety Inspection
NA	Review and if necessary update Activity Hazard Analyses (AHA) based on planned site activities for the day
NA	Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
NA	Site hazard and safety instruction for all first time employees, contractors or visitors
NA	Complete Employee Meeting Record Form B (where applicable
NA	Document required Respirator Training completion with Form H
NA ·	Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.
NA	Confirm return of waste material manifest documents for each load with site manager.
NA Com	plete all CSHASP Forms (for applicable activities planned for that day)
NA	Illness/Injury Report Form A
NA	Site-Specific Training Record Form C
NA	Hot Work Permit Form D
NA	Trench/Evacuation Permit Form E
NA	Combined Space Entry Permit From F
NA	Exclusion zone operations are practiced as instructed.
1112	NA Decontamination unit is working properly.
	NA Workers are using decontamination unit as instructed.
	NA Workers use personal protective equipment properly.
☑	Set air samples at cardinal compass points around exclusion zone. Check
-	throughout the day to ensure proper operation.
$\square$	Observe control measures for dust and fugitive materials i.e. watering excavation sites and track out prevention.
d d	Review sign-in/sign-out log throughout and at the end of the workday.  Secure the site at the end of the workday
	·
<u>Samplir</u>	<u>,</u>
NA Soil	Confirmation sampling for any newly excavated areas
$\square$	Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusions zone
NA	Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil

Digitally photograph each sample location and at any place field sampling personnel





NA	Electronically file photo files into the on-site database
	Complete Field Documentation
	Field Sample Data Sheets (FSDS)
	Logbook
NA	On-site computer database
$\square$	Label each sample media with a unique number
<b>7</b>	Seal sample(s) in zip lock plastic bags
Ø	Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
	Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
NA	Review and disseminate sample results as received from the laboratories to Project
	Manager and other appropriate managers and employees
NA	Electronically file sample reports into on-site database



Project: 3 <sup>rd</sup> West Sub Station  Location: 3 <sup>rd</sup> West, 1 <sup>st</sup> South, SLC		Date: 11/03/11  Job Number:				
		In Compliance	Out of Compliance	N/A	Corrective Action Taken and	
Standard	Title				Date	
1926.59	Hazard Communication <b>P</b> rogram, List of Chemicals, Training, MSDSs.			x		
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			x		
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	x				
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			x		
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toe boards shall be installed.			x .		

Head protection, where there is a possible

danger of head injury.

1926.100 (a)

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.652 (a)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			х	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.	x			
1926.20 (b)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			x	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toe boards.			. ·	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			x <sub>.</sub>	
1926.25 (a)	<b>D</b> ebris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			x	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			x	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			х	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			x	
1926.403 (b)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	x			

		liance	Compliance		
		In Compliance	Out of Con	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a)	Scaffolding shall have guardrails and toe boards when more than 10 feet high and when less than 45 inches of work space.			х	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			x	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	x			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			х	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			x	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	x			
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.			x	
1926.102 (a) (1)	Eye and face protection shall be provided.	x			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	x			
1926.350 (a) (9)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			x	

Standard	<i>Tit</i> le	In Compliance	Out of Compliance	N/A	Corrective Action Taken and Date
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			х	
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	x			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			x	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.			x	
1926.451 (a)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.			x	
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			x	
1926.404 (f)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	x			
1926.556 (b)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.			х	
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			х	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			x	• .
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	x		,	
1926.451 (a)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.		,	х	
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.		-	x	

Newman continued excavation and earth work in S. E. zone. Continued to fill and compact.

CVE fabricators worked on and set pier form on spread footings.

4 pumps at compass points monitored air throughout the day, north sample cassette dislodged from tubing and was lost. Only South, East, and West samples submitted for today.



determined necessary



### 3<sup>RD</sup> WEST SUBSTATION REMEDIATION PROJECT

### **HEALTH SAFETY MANAGER (HSM)**

		DAILY CHECKLIST
DATE	E:	11/03/11
G	<u>eneral</u>	
<u>G</u>		Work area Health and Safety Inspection
N.		Review and if necessary update Activity Hazard Analyses (AHA) based on planned site
147	4	activities for the day
N	4	Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
N	<b>A</b>	Site hazard and safety instruction for all first time employees, contractors or visitors
$N_{\lambda}$	A	Complete Employee Meeting Record Form B (where applicable
$\mathbf{N}_{I}$	<b>A</b> .	Document required Respirator Training completion with Form H
NA		Record times and numbers of dump trucks and trailers as they leave the site with
		contaminated material.
NA		Confirm return of waste material manifest documents for each load with site manager.
NA	Compl	ete all CSHASP Forms (for applicable activities planned for that day)
МА	NA	Illness/Injury Report Form A
	NA	Site-Specific Training Record Form C
	NA	Hot Work Permit Form D
	NA NA	Trench/Evacuation Permit Form E
	NA NA	Combined Space Entry Permit From F
	NA NA	Exclusion zone operations are practiced as instructed.
	NA	NA Decontamination unit is working properly.
		NA Workers are using decontamination unit as instructed.
		NA Workers use personal protective equipment properly.
		Set air samples at cardinal compass points around exclusion zone. Check throughout the day to ensure proper operation.
	•	
V		Observe control measures for dust and fugitive materials i.e. watering excavation sites and track out prevention.
$\Box$		Review sign-in/sign-out log throughout and at the end of the workday.
$\square$		Secure the site at the end of the workday
Sa	mpling	
27.4	0.11.0	
NA ☑	Soil Co	Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusions zone
N	A	Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal
N.	A	Digitally photograph each sample iocation and at any place field sampling personnel





NA Electronically file photo files into the on-site database  $\sqrt{\phantom{a}}$ Complete Field Documentation Field Sample Data Sheets (FSDS)  $\sqrt{\phantom{a}}$ Logbook NAOn-site computer database Label each sample media with a unique number ablaablaSeal sample(s) in zip lock plastic bags Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental  $\checkmark$ Samples NA Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees NA Electronically file sample reports into on-site database



Project: 3rd West Sub Station		Date: 11/04/11				
Location: 3rd West, 1st South, SLC		Job Number:				
Survey Cond	ucted By: <u>Justin Kargis</u>		Ti	itle: _		
		In Compliance	Out of Compliance	N/A	Corrective Action Taken and	
Standard	Title				<b>Da</b> te	
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			x		
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			х		
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	x				
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			x		
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toe boards shall be installed.			x		
1926.100 (a)	Head protection, where there is a possible danger of head injury.	х				

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard .	Title				Date
1926.652 (a)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			х	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.	x			
1926.20 (b) (1)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			х	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toe boards.			x	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			x	
1926.25 (a)	<b>D</b> ebris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			x	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			х	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			x	
1926.403 (b)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	х			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a)	Scaffolding shall have guardrails and toe boards when more than 10 feet high and when less than 45 inches of work space.			х	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			х	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	х			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			x	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			<b>x</b> .	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			x	,
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	x			
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.			х	
1926.102 (a) (1)	Eye and face protection shall be provided.	x			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	x			
1926.350 (a) (9)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			х	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.		-	х	
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	<b>x</b> .			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			x	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.	x			
1926.451 (a)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.			x	
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			x	
1926.404 (f) (7)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	x			
1926.556 (b)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.			x	
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			х	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.	x			·
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	x			
1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.	x			
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			x	

Newman continued excavation and earth work in S. E. zone. Found scrap pieces of geo grid material and a small amount of darker soil near east gate.

CVE fabricators pored columns for G structures in S. E. zone.

4 pumps at compass points monitored air throughout the day.

R&R sampled soil that had been brought into zone 1 for backfilling along the west side of control building. 1 sample taken to Dixon for analysis. Soil was darker and more brown than other fill material used in other areas of the site.

CVE brought in vacuum truck to dig a hole for a new power line pole outside the S.W. corner of zone 1.

Water was applied continuously to control dust and hole was covered upon completion. This excavation did appear to penetrate native soil.





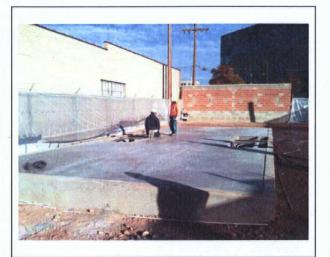
# 3<sup>RR</sup> WEST SUBSTATION REMEDIATION PROJECT HEALTH SAFETY MANAGER (HSM)

			DAILY CHECKLIST
DA'	TE:		11/04/11
		<u>neral</u>	
	$   \overline{\mathbf{A}} $		Work area Health and Safety Inspection
	NA		Review and if necessary update Activity Hazard Analyses (AHA) based on planned site activities for the day
	NA		Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
	NA		Site hazard and safety instruction for all first time employees, contractors or visitors
	NA		Complete Employee Meeting Record Form B (where applicable
	NA		Document required Respirator Training completion with Form H
NA			Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.
NA			Confirm return of waste material manifest documents for each load with site manager.
NA		Compl	ete all CSHASP Forms (for applicable activities planned for that day)
		NA	Illness/Injury Report Form A
		NA	Site-Specific Training Record Form C
		NA	Hot Work Permit Form D
		NA	Trench/Evacuation Permit Form E
		NA	Combined Space Entry Permit From F
		NA	Exclusion zone operations are practiced as instructed.
		1421	NA Decontamination unit is working properly.
			NA Workers are using decontamination unit as instructed.
			NA Workers use personal protective equipment properly.
	Ø		Set air samples at cardinal compass points around exclusion zone. Check throughout the day to ensure proper operation.
	V		Observe control measures for dust and fugitive materials i.e. watering excavation sites and
			track out prevention.
	<b>☑</b>	•	Review sign-in/sign-out log throughout and at the end of the workday.  Secure the site at the end of the workday
	San	npling	
			Soil Confirmation counting for any name of a group of a
0 0			Soil Confirmation sampling for any newly excavated areas
<b>V</b>			Stationary Air Monitoring during contaminated soil removal around the perimeter of the
	TNT ▲		exclusions zone  Personal Prothing Zone Manitoring on personnel conducting conteminated dust and soil
	NA		Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil
	TAT ▲		removal
	NA		Digitally photograph each sample location and at any place field sampling personnel determined necessary





NA	Electronically file photo files into the on-site database
$\overline{\checkmark}$	Complete Field Documentation
	Field Sample Data Sheets (FSDS)
	Logbook
NA	On-site computer database
$\overline{\mathbf{V}}$	Label each sample media with a unique number
	Seal sample(s) in zip lock plastic bags
	Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
$\square$	Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
NA	Review and disseminate sample results as received from the laboratories to Project
	Manager and other appropriate managers and employees
NA	Electronically file sample reports into on-site database



РНОТО 1



РНОТО 2



РНОТО 3

R & REnvironmental, Inc.
47 West 9000 South, Suite #2, Sandy, Utah 84070
(801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:	SCALE:	REVIEWED BY: DCR	
DRAWN BY: JMK	DATE 10/31/2011	FILE:	

SITE PHOTOGRAPHS





РНОТО 1



РНОТО 2



РНОТО 3

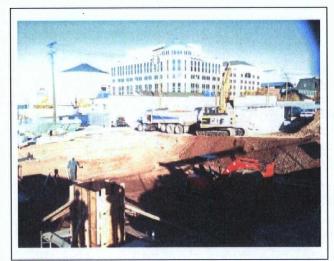
R & REnvironmental, Inc.
47 West 9000 South, Suite #2, Sandy, Utah 84070
(801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY: SCALE: REVIEWED BY: DCR DRAWN BY: DATE FILE: 11/02/2011 **JMK** 

SITE PHOTOGRAPHS





РНОТО 1



РНОТО 2



РНОТО 3

R& REnvironmental, Inc.
47 West 9000 South, Suite #2, Sandy, Utah 84070
(801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:	SCALE:	REVIEWED BY: DCR
DRAWN BY: JMK	DATE 11/03/2011	FILE:

**SITE PHOTOGRAPHS** 





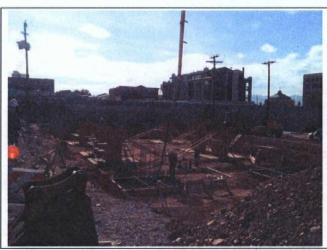
РНОТО 1



**PHOTO 2** 



РНОТО 3



РНОТО 4

## R & REnvironmental, Inc.

47 West 9000 South, Suite #2, Sandy, Utah 84070 (801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:

SCALE:

REVIEWED BY:

DCR

DRAWN BY:

JATE:

JMK

11-04-11

FILE:

SITE PHOTOGRAPHS

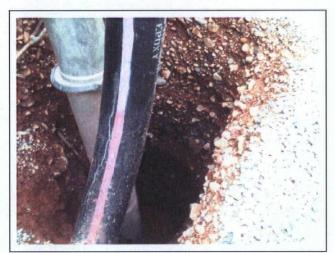




РНОТО 1



РНОТО 2



РНОТО 3



РНОТО 4

R & REnvironmental, Inc.
47 West 9000 South, Suite #2, Sandy, Utah 84070
(801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY: REVIEWED BY: SCALE: **DCR** DRAWN BY: DATE: FILE: 11-04-11 **JMK** 

## SITE PHOTOGRAPHS



## PACIFICORP OPERATIONS - Field Construction Representative Daily Log PROJECT NAME: Third West Sub - Rebuild DATE: Monday, October 31, 2011 3000078050 / 10035803 MAIN CONTRACTOR: Cache Valley Electric PO & Work Order NO. : **Crew Start Time:** 7:00 **Crew Stop Time:** 17:00 10:00 Tot Hrs mns: FCR Start Time: 6:45 FCR Stop Time: 17:15 10:30 Tot Hrs mns: Use military time format 00:00 Sunny - 65 degrees **WEATHER CONDITIONS:** DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.) R&R set up four monitors. CVE tying rebar and setting up forms for the spread footing stems (6 each). Newman continues to excavate to the north to complete the area where the final two "G" spread footings will be placed and is backfilling around the six mats that were poured last week. Newman is also excavating in the transformer foundation area. CVE will set forms and place rebar for the six spread footing stems and plan on pouring the six stems and the last two mats on Wednesday or Thursday. Tyler from PSI came by and witnessed the proof-roll of the base under the north two "G" foundations, and found it to be good. He will come back one more time for this part of the excavation when we complete the excavation of the east transformer area. Contractors: CVE = 5, Newman = 4, R&R = 1, Wilding = 1, **P**SI = 1. IF WORKING IN ENERGIZED SUBSTATION: Dispatcher login, name and time: Manny LuHuan 0700 Dispatcher logout, name and time: Gus Montanez 1710 DISCREPANCIES: IMMEDIATE CORRECTIVE ACTION TAKEN: **DELAYS OR LOST TIME ENCOUNTERED:** EQUIPMENT (working, delivered, idle): Portable toilet (2), forklift, 2 dumpsters, office trailer, conex, exclusion zone conex (2), water wagon, portable wash-down structure, trackhoe w/pavement breaker, mini-ex, bobcat, power washer, water truck, compactor, CVE tool trailer, crew truck, backhoe, dump truck.



OSHA Recordable Safety Incidents:

Russ Johnson

Reported by:

Time:

## PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME:	Third West	Sub - Rebuild	DATE :	Wednesd	ay, Novembe	r 2, 2011
PO & Work Order NO. :	30000780	50 / 10035803	MAIN CONTI	RACTOR :	Cache Valle	y Electric
Crew Start Time:	7:00	Crew Stop Time:	17:30		Tot Hrs mns:	10:30
FCR Start Time:	6:45	FCR Stop Time:	17:35		Tot Hrs mns:	10:50
Use military time format 00:00						
WEATHER CONDITIONS:		Sun	ny, 45 degrees			
		· · · · · · · · · · · · · · · · · · ·	<del>_</del>			
DESCRIPTION: (work performance CVE						
the six spread footing mats and 6 , <b>N</b> ewman = 4, <b>R&amp;R</b> = 1, Wild		st transformer foundation, and	nauling spoils to	the storage	site. Contract	ors: CVE =
IF WORKING IN ENERGIZE						
Dispatcher login, name and time			· 			
Dispatcher logout, name and time	e: Gus Montane:					
DISCREPANCIES:	<del></del>		MMEDIATE CO	RRECTIV	E ACTION TA	KEN:
					,	
DELAYS OR LOST TIME EN	COUNTERED:		<del> </del>	···		
Three hour down time on the bobcat		s to a hydraulic hose.	<del></del>			
					,	
EQUIPMENT (working, deli						
Portable toilet (2), forklift, 2 dumpste breaker, mini-ex, bobcat, power was					ture, trackhoe w	/pavement
OSHA Recordable Safety Ir	ncidents:		· · · · · · · · · · · · · · · · · · ·	Reported t		 Time:
Toolidable odiety if	10.4011101	<del></del>		TO POLICE I	<del>".</del>	
		······································				



Russ Johnson

## PACIFICORP OPERATIONS - Field Construction Representative Daily Log PROJECT NAME: Third West Sub - Rebuild DATE: Thursday, November 3, 2011 3000078050 / 10035803 MAIN CONTRACTOR: Cache Valley Electric PO & Work Order NO.: Crew Start Time: 6:50 10:40 Crew Stop Time: 17:30 Tot Hrs mns: 6:50 17:45 10:55 FCR Start Time: FCR Stop Time: Tot Hrs mns: Use military time format 00:00 **WEATHER CONDITIONS:** Sunny, breezy, 50 degrees DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.) R&R set up four monitors. CVE working on setting up forms and anchor bolts for the six spread footings. Six spread footing stems are ready to go and CVE anticipates pouring the mats for the two north spread footing foundations on Friday, along with the six stems. Newmah excavating for the east transformer foundation, backfilling around the west side of the control building foundation, and hauling spoils to the storage site. Newman also spread some gravel in the control building area as we are now needing to use the north gate for access in and out of the substation. The gravel will help in limiting any tracking outside the substation area. RMP Underground personnel (Rooster) came by today to look at the materials in the basement of the old control house and they will return in a couple of days to remove the materials the want. They have indicated that any material left in the basement after that can be scrapped. Contractors: CVE = 6, Newman = 4, R&R: Wilding = 1. IF WORKING IN ENERGIZED SUBSTATION: Dispatcher login, name and time: Barry Nielson 0655 Dispatcher logout, name and time: Gus Montanez 1745 **DISCREPANCIES:** IMMEDIATE CORRECTIVE ACTION TAKEN: DELAYS OR LOST TIME ENCOUNTERED: EQUIPMENT (working, delivered, idle): Portable toilet (2), forklift, 2 dumpsters, office trailer, conex, exclusion zone conex (2), water wagon, portable wash-down structure, trackhoe w/pavement breaker, mini-ex, bobcat, power washer, water truck, compactor, CVE tool trailer, crew truck, backhoe, dump truck.



OSHA Recordable Safety Incidents:

Russ Johnson

Reported by:

Time:

## PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME:	Third We	DATE:	Friday	, <b>No</b> ve <b>m</b> be <b>r</b> 4,	, 2011	
PO & Work Order NO. :	3000078	8050 / 10035803	MAIN CONT	RACTOR :	Cache Valle	y Electric
Crew Start Time:	6:50	Crew Stop Time:	17:30	0	Tot Hrs mns:	10:40
FCR Start Time:	6:50	FCR Stop Time:	17:3		Tot Hrs mns:	10:45
Use military time format 00:00	0.00	- ronotop mie.	17.00		, 100111131111131	10.40
Ose military time format 00:00						
WEATHER CONDITIONS:		Clear and Sunny in the AM	Cloudy and Bre	eezy i <b>n t</b> he l	P <b>M</b> , 40 deg <b>r</b> ee	s
DESCRIPTION: (work performance) R&R set up four monitors. CVE north spread footing mats this mompleted the pour around 3:00 building foundation, and hauling the trench in between the building. They will be or at 2:00 and vac'd the hole for the felt that keeping water on the hole to witness the proof roll of the exist Monday to give a final approval of the set o	completed the pre- orning in hopes of Newman excava- spoils to the storal g and the fence an site Saturday evenew pole adjaced le would alleviate cavation for the excavation	eparation for pouring the six spr f having them ready to pour at 1 ating for the east transformer for age site. Set one cable trench in fter the building is set. Receive ening and will be ready for build not to the 6" riser near the corner any issues with hazardous mate ast transformer pad. He gave t	ead footing stems: :00 with the stem: undation, backfilling running south from id phone call from ting set on Monda of the printing bue erials. Contractors the proofing a thur	last night. To s. Started point around the in the pullbox the trucking by morning. (illding. R&R is: Tyler, from the up and we are the trucking in the truckin	They are working our around 1:15 as west side of the so we wouldn't company that is CVE Vac-truck continues and the promise of	on the two and e control have to snal hauling the ame on site rocess and around 2:45
IF WORKING IN ENERGIZE						
Dispatcher login, name and time		735				
Dispatcher logout, name and tim	e:					
DISCREPANCIES:			IMMEDIATE C	ORRECTIV	E ACTION TA	KEN:
CVE indicates that they were given pour and that an 8" slump was acceptor had I. The onsite specs for this judicate acceptable if the mud is to be	otable. Wilding had ob indicate that the	not been informed of this change,				
No thermal protection, other than a p	piece of visqueen ov	er the open top of the forms was	Advised CVE of the	e requirement	for thermal protec	tion for the
placed on the six stems poured toda	y. Blankets were pla	aced on the two mats. Lows fo	first 48 hrs when m			
Saturday and Sunday are expected	to be 30 and 29 deg	rees respectively.				
DELAYS OR LOST TIME EN	ICOUNTEDED.		<u> </u>			
The concrete company shorted the concrete some allowed (30 mins.) between	lelivery by one yard		nup of one yard. Th	ne mud was de	livered well within	the paramete
EQUIDMENT (wasking of the	uprod idic)	<del></del>				
<b>EQUIPMENT (working, deliv</b> Portable toilet (2), forklift, 2 dumpste breaker, mini-ex, bobcat, power was	rs, office trailer, con					/pavem <b>en</b> t
OOUA Day 111 O C C C	and and			<u> </u>	h '	Time
OSHA Recordable Safety Ir	icidents:			Reported	by:	Time:



Russ Johnson



November 3, 2011

Laboratory Code:

RES

Subcontract Number:

NA

Laboratory Report: Project # / P.O. #

RES 223514-1 None Given

**Project Description:** 

3rd West Sub Station -

RMP

Eldon Romney R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 223514-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely.

Jeanne Spencer Orr

President

## RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

#### TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

**RES Job Number:** 

RES 223514-1

Client:

R & R Environmental

Client Project Number / P.O.: None Given

**Client Project Description:** 

3rd West Sub Station - RMP

**Date Samples Received:** 

November 2, 2011

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

**November 3, 2011** 

Client ID Number	Lab ID No	umber	Area Analyzed	Air Volume	Number of Asbestos	Analytical Sensitivity	Asbestos Concentration	Filter Loading
				Sampled	Structures Detected			
•			(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)
3W-103111-E	EM	817882	0.0880	917	ND	0.0048	BAS	BAS
3W-103111-S	EM	81788 <b>3</b>	0.0880	916	ND	0.0048	BAS	BAS
3W-103111-N	EM	817884	0.0880	914	ND	0.0048	BAS	BAS
3W-103111-W	EM	817885	0.0880	912	ND	0.0048	BAS	BAS

NA = Not Analyzed

Filter Material = Mixed Cellulose Ester

ND = None Detected

Filter Diameter = 25 mm

**BAS = Below Analytical Sensitivity** 

Effective Filter Area = 385 sq mm

Average Grid Opening in mm<sup>2</sup> = 0.011

DATA QA

Due Date: 11-3-11

UUU .,	
Page	of i

Due Time:	<u> </u>	-		REI	LAB	Kes	Seo1 Logar	n St O#nver, C	0 502	16 • Ph												<b>_</b> _				P	age	1	of
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Company: () C ()	Eurvonne	1 1		· ·		Comper		E IO. (IF	DIF	FERE			Cor	rtact: {	<b>V</b>	Ro	ادمأد	1/4 4			ONIZ	AC I	-	Conta		-			
No IC	9000 S.		<del> </del>			Address	<b>s</b> :						Ptw	ne:	<u>~∨~</u>	ر الن	2 6	N.A						Phone	<b>b</b> :				
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Praject Number and/or F	P.O. #:					1							Fin	ai Data	Delive	91 S rable En	nall Add	ress:									<del></del>		
Project Description/Loca	ation: 313 W	est?	Jub St	atisn -	RMIP									ල්	ove	@1	Yen	เท่า	٥.٧٥	m									
ASBESTOS LA	BORATORY	HOUR	S: Weel	days: 7	am - 7pm	1					. :	F	REQU	ESTE	ED. A	NAL	/SIS				T	٧	ALI	DM	IATRIX C	ODE	S	L/	AB NOTE:
PLM / PCM / TEM	Rt	JSH (Sa	me Day)	<b>₩</b> PRIO	RITY (Next	Day)S	TANDARD			•						П						Ai	r = <i>f</i>	1		Bulk:	= B	I	
			(Rush PC	:M = 2hr, 1	T <b>EM = 6</b> hr.)								-1			11			ł			Du	st =	D_		Paint	= P		
CHEMISTRY LA	ABORATORY	HOU					• •	·	] [		1	1								l		So	il = \$	S	'	Wipe :	= W		· ·
Metal(s) / Dust		_	_RUSH	24 hr.	3-5 Day	***	rior notificat	Hon le	1	Ĕ						۔ ا	11				-	Swa		_		F = F			
RCRA 8 / Metals	-		RUSH	5 day	10 day		quired for R		盲	ouant,	l i		Scan			뵱			fcation		Drin	king	Wale		DW Wast	e Wat	er ≃ WW	<u> </u>	
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Organics				3 day					Point Count	ISO,			Metals		1	3		5	Tage 1	2	<del>  "</del> /	ASTM	E17	972 ap	pproved wip	e med	la only"	·	
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E.coli O1S7:H7, C	-				r2 Da		6 Day			, 7402, ISO-Indi	OSHA		를	] ]		\$	Tificati	anti	활돌	5		- 1						<del> </del>	
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**Turnaround times	esiediish a labor	atory pri apply for	afisritours	, weekends :	and holidsys.	m Ho Ste viof år	uarantsso. A	ooitional fees	활	¥ Š	7	-	. Analyte(s) 'CLP, Welding Fume, (	뿔	# 15	# 읦		🖹	٠   <u>٠</u>	Ē	ĮĔ			y				200	
Special Instruction									PLM - Short report,	TEM - AHERA Semi-quant, Mi	PCM - 7400A,	DUST - Total,	METALS - Amal RCRA 8, TCLP,	ORGANICS - METH	Salmonella: +/- E.coli O157:H7:				Y & M.	AMPLER'S	Sample Volume	(L) / Area	Matrix Code	# Containers	Date Collected		Time collected	EM N	u <b>mber (L</b> at Use Only)
Client sample		· · · · · · · ·	.·· (Sa	imple ID's	must be uni	que) ··			<u> </u>		T	-	ΣŘ	Ö		MICRO	OBIOL	OGY		Ø.	9	_		*	mm/dd/yy	$\overline{}$	h/mm e/p		
1 3W-103										<u> </u>		_			_		$\sqcup$	$\perp$	_		141	•	Ą	$\dashv$	10(31(11	4		2	758
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NOTE: REI will an	nalyze incomine san	nples bas Custody	al updin infii shan consilir	mation recell ute an analytic	ved and wa not	te responsib	ale for errors or	omissions in c	akulaji	lons resi	ulting fr	rom II	ne inacci yment te	uracy o	f origin By resi	nal dala. vit in a 1	By sig .5% m	ning d onthly	ient/co	mpany re	ge.	alim.	<b>eb</b> iee	s thai	l submission	of the f	foilowing sa	mples for r	eguesiod
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Relinquished Laboratory Us		7		<del></del>			•			_	Date			-			_									Yes/		es / No	
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Date Time Initials Contact Phone E

## Attachment I

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

## Asbestos Type

#### Structure Types

Α	=	Amosite	F =	Fiber
An	=	Anthophyllite	B =	Bundle
$\mathbf{C}$	=	Chrysotile	C =	Cluster
Cr	=	Crocidolite	M =	Matrix
Т	=	Tremolite		

ND = no structures detected

= other structure associated with a matrix

NAM = Non Asbestos Mineral

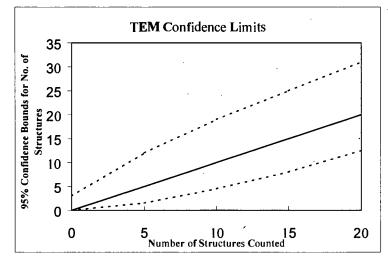
XGB = partly obscured by a grid bar

Sizing Conversion
1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

## **TEM** Analysts

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bemard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Laboratory name:	REI
Instrument	JEOL 100 (N) S
Voltage (KV)	100 KV
Magnification	ZOKOCTOKX
Grid opening area (mm2)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary fifter area (mm2)	385
Secondary Filter Area (nvn2)	
QA Type	

Ciient :	Rock
Sample Type (A=Air, D=Oust):	A
Air volume (L) or dust area (cm2)	917
Date received by lab	11/2/11
Lab Job Number:	223514
Lab Sample Number:	817882

Analyzed by	713
Analysis date	11/3/11
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scooe Alignment	Date Analyzed

F-F	actor Calculation (Indirect Pr	reps Only):	
Frac	tion of primary filter used		
Tota	Resuspension Volume (ml)		
Volu (ml)	ne Applied to secondary filter		_

Grid	Grid Opening	Structure	No. of St	mctures	Dime	nsions	Identification	Mineral Class				1 = y	es, tilank	= no
00	One Opening	Туре	Primary	Total	Length	Width		Amphibole	С	NAM	Sketch/Comments	Sketch	Photo.	EDS
A	L5-1	M			,		·							
	K5-1	SD			<u> </u>	Pa		60%	in f	mf	5% d	brig		
	H5-1	ND				Pup	B	50% in h	/	5/2	debris			
	615-1	20				,				4	P			
B	K4-1	ND								and	11/3/11			
	H4-1	ND						/		7	)-)			
	64-1	ND						•						
	F4-1	W												

Laboratory name:	REI
Instrument	JEOL 100 NOS
Voltage (KV)	100 KV
Magnification	ZOKOKOKX
Grid opening area (mm2)	0.011
Scale: tL =	0,28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Tyoe	

I PIN Vancatos Oft	actual oculit
Client:	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	916
Date received by lab	11/2/11
Lab Job Number:	223514
Lab Sample Number:	817883
	• • • • • • • • • • • • • • • • • • • •

Analyzed by	373
Analysis date	11/3/11
Method (D=Oirect, l=Indirect, IA=indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

	F-Factor Calculation (Indirect Pre	sps Only):
	Fraction of primary filter used	
	Total Resuspension Volume (mi)	·
•	Volume Applied to secondary filter (ml)	
	(4.15)	<u> </u>

Grid	Grid Opening	Structure	No. of Str	uctures	Dimer	nsions_	Identification	Mineral Class				1 = y	es, blank	= no
GIN	Grid Operating	Туре	Primary	Total	Length	Width	Identification	Amphibole	С	NAM	Sketch/Comments			EDS
A	144-1	M												_
	64-1	M			(-	) up	A	70 hoin	In	$\int$	5-7%	dela	75	,
	F4-1	M			2	⊆مما	13	60 %in	bu	7	5-7%	deha	i'S	
13	<b>\$</b> F3-3	M				γ								
3	62-3	ND				·		Bund	11/3	kı				
	FZ-3	ND							/		/			
	EZ-3	ND												
	C2-3	M												
					·									
` .		,		·					•					

Page	1	of	

Laboratory name:	REI
Instrument	JEOL 100 NDS
,	
Voltage (KV)	100 KV
Magnification	. 20KX TOKX
Grid opening area (mm2)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primaly filter area (mm2)	385
Secondary Fitter Area (mm2)	
QA Tyoe	

Rock
A
914
uzh
223514
817884

Analyzed by	J13
Analysis date	11/3/11
Method (D=Direct, i=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-f-actor Calculation (	(Indirect	Drane	Ontv\·
L.Laciot Calculation (	THE STREET	Liens	Cilly).

	The state of the s	De Cilly J.
	Fraction of primary filter used	
	Total Resuspension Volume (ml)	
-	Volume Applied to secondary litter (ml)	

Grid	Grid Opening	Structure	No. of St	uctures	Dimer	sions	Identification	Mineral Class				1 = y	es, blank	= no
		Туре	Primary	Total	Length	Width		Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	H3-6	MD			,				·					
	63-6	ND				f	Lys A	80%	is d	mt	20-29	Zod	26	, 5
	F3-6	M				6	mB-	A	2					
	E3-6	M		'			0	1 Bul	11/3/0					
B	44-3	ND		L			,	/ /	//		·		-	
	64-3	ND												
	F4-3	ND												
	C4-3	W			<u> </u>									
											·			
	· ·										{			

Laboratory name:	REI
Instrument	JEOL 100 NS
Voltage (KV)	100 KV
  Magnification	ZOKOCIOKX
Grid opening area (mm2)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Tyoe	

72N ASDESTOS OF UCTURE COUNT					
Client :	R+R				
Sample Type (A=Air, D=Dust):	A				
Air volume (L) or dust area (cm2)	912_				
Date received by lab	uzh				
Lab Job Number:	223514				
Lab Sample Number:	817885				
F-Factor Calculation (Indirect Preps Only):					

Fraction of primary filter used

Total Resuspension Volume (ml)

Volume Applied to secondary liter
(ml)

5514	
885	
<u> </u>	ì
	1

Analyzed by	373
Analysis date	11/3/11
Method (D=Olrect, l=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scooe Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of St	mctures	Dimensions Identification Mineral Class		Dimensions Identification				1 = yes, blank = no			
	, , , , , , , , , , , , , , , , , , ,	Туре	Primary	Total	Length	Width		Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A.	65-	ND			·									
	F5-1	ND			- {	up	A 46	3 80%	sid!	mf	3-5%	de	bus	
	E5-1	MS					<u> </u>	<i>!</i>						
	C5-1	M					1	1/3/	<u> </u>					
B	43-3	MD					1	1 / /					•	
	H5-3	MÕ												
	65-3	W)												
	F5-3	M			<u>.                                    </u>									
								·						,
					<u> </u>				-					·

## Analytical Procedures – AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50<sup>th</sup> structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

#### **Equations Used for Calculations**

Area Analyzed,  $mm^2 = \# GO \text{ counted } x \text{ Average } GO \text{ Area } (mm)$ 

Concentration,  $s/cc = \frac{\# \text{ Asbestos Structures}}{\# \text{ GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Etf. Filter Area (mm}^2)}{\text{Average GO area (mm}^2)} \times \frac{\text{IL}}{1000cc}$ 

Filter loading,  $s/mm^2 = \frac{\# Asbestos structures}{Area Analyzed (mm^2)}$ 

GO = TEM grid opening



November 7, 2011

Laboratory Code:

RES

Subcontract Number:

NA

Laboratory Report: Project # / P.O. #

RES 223662-1 None Given

**Project Description:** 

3rd West Sub Station -

RMP

Eldon Romney R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer.

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 223662-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr

President

## RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0018

## TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

**RES Job Number:** 

RES 223662-1

Client:

R & R Environmental

Client Project Number / P.O.: None Given

**Client Project Description:** 

3rd West Sub Station - RMP

**Date Samples Received:** 

November 4, 2011

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

**Date Samples Analyzed:** 

November 4, 2011

Client ID Number	Lab ID Number		Area Analyzed	Air Volume Sampled	Number of Asbestos Structures Detected	Analytical Sensitivity	Asbestos Concentration		Filter Loading	
			(mm²)	(L)	·	(s/cc)		(s/cc)	(s/mm²)	
3W-110211-E	EM	819163	0.1100	1001	ND	0.0035		BAS	BAS	
3W-110211-S	EM	819164	0.1100	999	ND	0.0035		BAS	BAS	
3W-110211-N	EM	819165	0.1100	997	ND	0.0035		BAS	BAS	
3W-110211-W	EM	819166	0.1100	997	ND	0.0035		BAS	BAS	

NA = Not Analyzed

Filter Material = Mixed Cellulose Ester

ND = None Detected

Filter Diameter = 25 mm

BAS = Below Analytical Sensitivity
Average Grid Opening in mm<sup>2</sup> = 0.011

Effective Filter Area = 385 sq mm

\_\_\_\_

Digitally signed by Gina Vettraino

09:32.59 -07'00'

DATA QA

Due Date: # 501 511
Due Time: 5301

## RELAB Reservoirs Environmental, inc.

Pager: 303-809-8088

S80 I Logan St. Deriver, CO 80216 • Ph: 303 964-1986 • Fax 303-477-4276 • Toli Free :866 RESI-ENV

INVOICE TO: (IF DIFFERENT) CONTACT INFORMATION: Contact Dave Roskeller Coniact Emmonmente Address: Phone: Phone: 98005 Fax Cet/pagar. Cell/pager: 801 SLI -1035 Project Number and/or P.O. it: dave @ menviro. com Project Description/Location: **REQUESTED ANALYSIS** ASBESTOS LABORATORY HOURS: Weekdays: 7am - Tpm **VALID MATRIX CODES LAB NOTES** RUSH (Same Day) X PRIORITY (Next Day) STANDARD Air = ABulk = B (Rush PCM = 2hr, TEM = 6hr.) Dust = D Paint = P CHEMISTRY LABORATORY HOURS: Weekdays: Sam - Sam Soil = S Wipe = W Metal(s) / Dust \_\_\_ RUSH \_\_\_ 24 hr. \_\_\_3-5 Day Swab = SW F = Food Quant \*\*Prior notification is RCRA 8 / Metals & Welding Drinking Water = DW | Waste Waler = WW Point Count RUSH 5 day 10 day rsquired for RUSH Fume Scan / TCLP O = Other turnarounds.\*\* Organics 24 hr. \_\_\_ 3 day \_\_\_5 Day "\*ASTM E1792 approved wipe media only"\* MICROBIOLOGY LABORATORY HOURS: Weekdays: 9am - Spui Long report. E.coii O157:H7, Coliforms, S.aureus . 24 hr. 2 Day OSHA 48 Hr. \_\_\_3-5 Day Salmonella, Listeria, E.coli, APC, Y & M Mold 24 Hr 46 Hr S Day Shart report, \*\*Turnaround limes establish a laboratory priority, subject to laboratory volunw and ara not guaranteed. Additional fees apply for afterhours, weekends and holidays."\* Special Instructions: EM Number (Laborat (L) / Area Date Time Use Only) Collected Collected Client sample ID number (Sample ID's must be unique) MICROBIOLOGY mm/dd/yy hh/mm s/p 3W-110211 - E ulselu 3W-110211-S 999 3W-160211 - N 3W-110211 - W 8 9 10 Number of samples received: (Additional samples shall be listed on attached long form.) NOTE: REI will analyze Incoming samples been upon information received end will not be assponsible for errors or omissions in calculations resulting from the inaccuracy of original data. By signing client/company representative egrees that eutomission of the following samples for requested analysis as indicated on this Chain of Custody shall constitute an analytical services agreement with payment terms of NET 30 days, failure to comply with payment terms may result in a 1.5% monthly interest surcharge. Relinguished By: Date/Time: Sample Condition: On loe Sealed Inlact Laboratory Use Onk Temp. (F°) Yes / No Yes / No Received By: Date/Time: Results: Date i / / // / Time 7 200 Initials // Date /1=7-1/ Contact Plione Email Fax Time -- Initials Phone Email Fax Phone Email Fax Contact Date Date Time Initials

## **Attachment I**

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

## Asbestos Type

## Structure Types

Α	=	Amosite	F =	Fiber
An	=	Anthophyllite	B =	Bundle
C	=	Chrysotile	C =	Cluster
Cr	=	Crocidolite	M =	Matrix
Т	=	Tremolite		

ND = no structures detected

M = other structure associated with a matrix

NAM = Non Asbestos Mineral

XGB = partly obscured by a grid bar

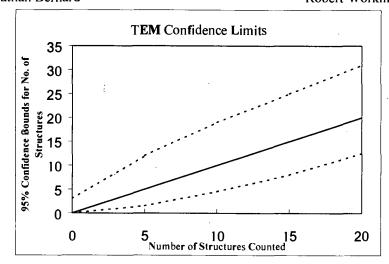
Sizing Conversion

1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

#### TEM Analysts

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bernard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Laboratory name:	REI
Instrument	JEOL 100 CX NS
Voltage (KV)	100 KV
Magnification	ZORX IOKX
Grid opening area (mnr2)	0.011
Scale: 1L=	0.28 um
Scale: 10 =	0.056 um
Primary filler area (mm2)	385
Secondary Filter Area (mm2)	NA
QA Type	NO OA

RIR
A
1001
11-4-11
223662
819163

F-Factor Calculation (Indirect Pr	eps Only):
Fraction of primary filtar used	
Total Resuspension Volume (ml)	
Volume Applied to secondary litter (ml)	

Analyzed by	AH
Analysis date	11-4-11
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	٥
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of St	ructures	Dimer	nsions	Identification	Mineral Class				1 = y	es, blank	= no
		Туре	Primary	Total	Length	Width		Amphibole	0	NAM	Sketch/Comments	Sketch	Photo	EOS
A	H5/3	$\Delta $					·	•						
	G5-6	$\Delta \Delta$												
	65-3	NS		Pika	A: 8	0 C	intact	5-109	de	625				
	F5-6	W)		Pipo	Br	Piec	A-							· .
B	153	<b>₩</b>						M						
	K5-6	$\Delta N$												
	145-3	ND												
:	HS-6	ND				<u> </u>								

	· · · · · · · · · · · · · · · · · · ·
Laboratory name:	REI
Instrument	JEOL 100 CX N S
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm2)	0.011
Scale: 1L=	0.28 um
Scale: 1D =	0.066 um
Primary filler area (mm2)	385
Secondary Filter Area (mm2)	NA.
QA Type	no QA

1 EM 1 10000103 OU	octore Count
Client :	RIR
  Sample Type (A≂Air, D=Dust):	A
Air volume (L) or dust area (cm2)	999
Date received by lab	11-4-11
Lab Job Numben	223662
Lab Sample Number	819164

F-Factor Calculation (Indirect Pr	CPS CHITT.	_
Fraction of primary fitter used		
Total Resuspension Volume (ml)		
Volume Applied to secondary filter	<del> </del>	

Analyzed by	M
Analysis date	11/4/11
Method (D=Direct, I=Indirect IA=Indirect, ashed)	۵
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of St	ructures	Dimer	nsions	Identification	Mineral Class				1 = y	es, blank	= no
		Type	Primary	Total	Length	Width		Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	25-34	ND												
	c5-34	NO		-			fner A	80/. Intact	7	57. d	ebris			
	B5-B4	M					lage b	~50/. inta	c4 ~5	7.de	or's			
	E4-1	ND						Jen,	In	- 4/	4/11			
B	K6-4	M								· ·				
	464	M							<u> </u>					·
	97-1	ND								,				
	95-4	M												
		·												
	•								•					,

Laboratonr name:	REI
Instrument	JEOL 100 CX N S
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm2)	0.011
Scale: 1L =	0.28 um
Scale: 10 =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	m.
QA Type	yw Clif

Client:	R+R
Samole Type (A=Alr, D=Dust):	A
Air volume (L) or dust area (an2)	997
Date received by lab	11-4-11
Lab Job Number	223662
Lab Sample Number	819165

	y filler used
Total Resuspension Volume (ml)	on Volume (ml)

Analyzed by	U
Analysis date	11/4/9
Melhod (D=Direct, I=(ndirect, IA=Indirect, ashed)	0
Counting mles (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of St	ructures	Dime	nsions	Identification	Mineral Class				1 = y	es, blank	= no
Ond.	Ond Opening	Туре	Primary	Total	Length	Width	100110110011011	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	K-4-1	8									,			i
	H4-1	18		•		Pre	PA 7	0/ intaca	15	l. de	ori_s			
	614-1	180				Pre	B ~1	0/. Maes	~57	Le	6n3 ·			
	F4-1	M		-		_		, .	,	er 11,	14/10			
3	c5-4	NO					,		'.					
	C5-6	M												
·	95-3	NO									·			
	96-6	M												
							,							

Laboratory name:	REI
Instrument	JEOL 100 CX N S
Voltage (KV)	100 KV
Magnification	20kg 10kx
Grid opening area (mm2)	0.011
Scale: 1L =	0.28 um
Scale: 1D=	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	- wH
QA Type	mas

Client:	R+R
Sample Type (A=Air, I)≖Dusl):	A
Air volume (L) or dust area (cm2)	997
Date received by lab	11-4-11
Lab Job Number.	223662
Lab Sample Number:	819166

Analyzed by	N
Analysis date	10/4/4
Method (D=Direct, l=Indirect, IA=Indirect, ashed)	۵
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps Or	,,
Fraction of primary filler used	
Total Rasuspension Volume (mi)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure	No. of St	mctures	ctures Dimen		Identificatien -	Mineral Class				1 = yes, blank = no		
O.A.	Cha Opening	Туре	Primary	Total	Length	Width	, donainoution	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	96-3	NO												
	F6-3	8		-		· ·	freg A	70/. in	ence	3-5	1. debris			
	26-3	3				,	Prep &	~ A		,				, .
	(6-3	2					V	Jen	Kini	u/	1/1			
B	F5-4	NO											,	
	E5-4	NO		,										
	F3-1	NO								,				
	F3-1	NO												
										,				
·							,		·					

#### Analytical Procedures – AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50<sup>th</sup> structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

#### **Equations Used for Calculations**

Area Analyzed, mm<sup>2</sup> = # GO counted x Average GO Area (mm)

Concentration, s/cc =  $\frac{\# \text{ Asbestos Structures}}{\# \text{ GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2)}{\text{Average GO area (mm}^2)} \times \frac{1L}{1000\text{cc}}$ 

Filter loading, s/mm<sup>2</sup> = # Asbestos structures Area Analyzed (nɪm²)

GO = TEM grid opening

Due Date: 118/19 Due Time: 9:45000

# REILAB RESELVOITS ENVIRONMENTAL, INC. 5801 Logan St. Denver, OO 802 (6 · Ph: 303 984-1988 · Faxt 303-477-4278 · Toll Fres: 1889 PESI-ENV

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Client sample ID n	umber (Sample I	D's must be unique)		Ž	Sea TEM	Ş	TSDO	RCRA 8.	Ö		<del></del>	BIOL	بتت		SAN	San		Z Z	*	ollect mm/dd/		Coliected hh/mm a/p		
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Number of samples rece			amples shall be listed on																					
NOTE: REI will analyze be	coming samplas based upon information in this Chain of Qualody shall constitute an ar	received and will not be reepon	sible for enOrs or omissions in o th payment terms of NET 30 day	Skols:	tiom tes	sulting fr amoty wi	om the	inaocur ent tem	acy of o	origina) resuit	data. in a 1.	By sig .5% m	ning di onthiv i	ent/ca nterea	mpany re	epresenta roe.	ive aq	grees	that s	es rimdu	on of t	he following sa	imples for re	quesnd
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## **Attachment I**

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

## Asbestos Type

## Structure Types

Á	=	Amosite	F =	Fiber
An	=	Anthophyllite	B =	Bundle
C	=	Chrysotile	C =	Cluster
Cr	==	Crocidolite	M =	Matrix
Т		Tramolita		

ND = no structures detected

M = other structure associated with a matrix

NAM = Non Asbestos Mineral

XGB = partly obscured by a grid bar

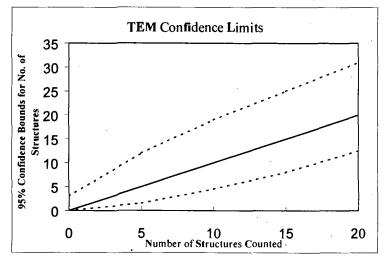
Sizing Conversion

1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

## **TEM** Analysts

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bemard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Laboratory name:	REI
Instrument	JEOL 100 CX N(\$)
Voltaae (KV)	100 KV
Magnification	(20K)X 10KX
Grid opening area (mm2)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

RaR
A
1018
11-7-11
223762
819882

F-Factor Calculation (Indirect Pro	eps Only):
Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	AH.
Analysis date	11-7-11
Melhod (D=Direct, l=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Data QL JB utdu

Grid	Grid Opening	Structure	No. of St	ructures	Dime	nsions	klentification	Mineral Class		1 = yes, blank = no				
		Туре	Primary	Total	Length	Width	N. C.	Amohibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	F4-1	$\nabla \nabla$												
	E4-4.	ND												
	E4-1	[V]		Pio c/	: 70	0 x	tact	5% d	eba					
	04-4	2		PROF	sno.	ecA	_			•				
B	65-4	M						$\alpha$						
	F5-4	MD												
	65-	2							·					
								·				-		

Laboratory name:	REI
Instrument	JEOL 100 CX N(S)
Voltage (KV)	100 KV
Magnification	20RX 10KX
Grid opening area (mm2)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Atea (mm2)	
QA Tyoe	

RaR
A
241
11-7-11
223762
819883

Analyzed by	AH
Analysis date	11-7-11
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Inditect Pte	eps Only):
Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure	No. of St	mctures	Dime	nsions	Identification	Mineral Class				1 = y	es, blank	= no
		Type	Primary	Total	Length	Width		Amphibola	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	F4-60	MD				·		,						
	F4-3	ND		·										
	E4-6	M		Red	4:90	מו בין ע	tact	3-5%	le6	ہے_		·		
	£4-3	2		Pier E	3~fi	e A								
	C4-6	$\sim$		•	<u> </u>				,					
3	H4-1	MD												
	64-4	M				0								
	64-1	24		·		1C		ŕ	·	٠.				·
	F4-4	NS				1								
	F4-1	an.			-		·							

Laboratory name:	REI
Instrument	JEOL 100 CX N(S)
Voltage (KV)	100 KV
Maonification	(20KX 10KX
Grid opening area (mm2)	0.011
Scale: 1L=	0.28 um
Scale: 1D =	0,056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

1200000000	40,440 004
Client :	RaR
Samole Tyoe (A=Alr, D=Dust):	A
Air volume (L) or dust area (cm2)	973
Date received by lab	11-7-11
Lab Job Numben	223762
Lab Sample Number:	819885

Analysis date	{ (1 +-1)
Method (D=Direct, l=Indirect,	
IA=Indirect, ashed)	ı D
Counting rules	Au
(ISO, AHERA, ASTM)	<u> </u>
Grkl storage location	Month Analyzed
Scope Alignment	Date Analyzed

Analyzed by

F-Factor Calculation (indirect Preps Only):						
Fraction of primary filtar used	d .					
Total Resuspension Volume	(ml)					
Value - Arefiel to consular	- Alter					

Grid	Grid Opening	Structure <sup>-</sup>	No. of St	ructures	Dime	nsions	Identification	Mineral Class			1 = yes, blank = no			
		Туре	Primary	Total	Length	Wkith		Amphibole	C.	NAM	Sketch/Comments	Sketch	Photo	EDS
A	F4-4	$\infty$						,						
	F4-1	M												
	E4-4	M		R	A:	90%	intact	3-5%	de	لمر		٠		
	E4-1	NA		Pre	Bi		ntace	3.5	y d	ebr	-			
3	C4-4	M											·	·
	C4-1	$\sqrt{V}$												
	B44	W						/	10.					
	B4-1	MD						/						
														,
·	,													

## Analytical Procedures - AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confinned on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50<sup>th</sup> structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

#### **Equations Used for Calculations**

Area Analyzed, mm<sup>2</sup> = # GO counted x Average GO Area (mm)

Concentration,  $s/cc = \frac{\text{\# Asbestos Structures}}{\text{\# GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2)}{\text{Average GO area (mm}^2)} \times \frac{1L}{1000cc}$ 

Filter loading, s/mm<sup>2</sup> = # Asbestos structures Area Analyzed (mm<sup>2</sup>)

GO = TEM grid opening



November 9, 2011

Laboratory Code:

RES

Subcontract Number:

NA

Laboratory Report: Project # / P.O. #

RES 223763-1 None Given

Project Description:

3rd West Sub Station

RMP

David Roskelley R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 223763-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr

President

## RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

#### TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:

RES 223763-1

Client:

R & R Environmental

Client Project Number / P.O.: None Given

**Client Project Description:** 

3rd West Sub Station RMP

**Date Samples Received:** 

November 7, 2011

**Analysis Type:** 

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

November 7 & 8, 2011

Client ID Number	Lab ID N	Lab Area ID Number Analyzed		Air Volume Sampled	Volume Asbestos Sampled Structures		Asbestos Concentration	Filter Loading	
			(mm²)	(L)	Detected	(s/cc)	(s/cc)	(s/mm²)	
3W-110311-E	EM	819879	0.0770	1117	ND	0.0045	BAS	BAS	
3W-110311-S	EM	819880	0.0770	1110	ND	0.0045	BAS	BAS	
3W-110311-W	EM	819881	0.0770	1109	ND	0.0045	BAS	BAS	

NA = Not Analyzed

Filter Material = Mixed Cellulose Ester

ND = None Detected

Filter Diameter = 25 mm

**BAS** = Below Analytical Sensitivity Average Grid Opening in mm<sup>2</sup> = 0.011 Effective Filter Area = 385 sq mm

DATA QA

Due	Date:_	11.8.11
	Time:	9dan

# REICAB RESERVOIRS ENVIRONMENT: at., Inc. seoi Logan St Denver, CD 80216 • Ph. 303 964-1966 • Fax 303-477-4275 • Toll Flass :866 RESI-ENV

Logan St Denver, CD 80216 • Ph: 303 984-1986 • Fax 303-477-4275 • Tolt Files :866 RESI-ENV Page 1 Of Page

CONTACT INFORMATION: INVOICE TO: (IF DIFFERENT) Company: Emiron merta Arichaes 47 W 90005 Cell/pagor: CONPAGET: 801 541-W35 Project Number and/or P.O. W. Prajact Osscription/Location: dave & menino, com 300 West Sub Station RAILP **VALID MATRIX CODES REQUESTED ANALYSIS** LAB NOTES: ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm PLM / PCM / TEM RUSH (Same Day) PRIORITY (Next Day) STANDARD Ar = A Bulk = B Paint = P (Rush PCM = 2hr, TEM = 6hr.) Dust = D CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm Soil = S Wipe = W 11911 Metal(s) / Dust RUSH \_\_\_ 24 hr. \_\_\_3-5 Day Swab = SW F = Food Quant "Prior notification Is Drinking Water = DW Waste Water = WW RCRA 8 / Metals & Welding Point Count Metals Scan RUSH \_\_\_ 5 day \_\_\_10 day required for RUSH II, 7402, ISO, +/-, ( ISO-Indirect Preps Fume Sean / TCLP O = Other turnal ounds.\*\* \*\*ASTM E1792 approved wipe media only\*\* 24 hr. \_\_\_ \$ day \_\_\_\$ Day **Organics** MICROBIOLOGY LABORATORY HOURS: Weekdays: 9am - 6pm - Analyte(s) TCLP, Welding Furne, E.coli Q157:H7, Colifornis, S.aureus \_2 Day 24 hr. 3-5 Day 7400A, 7400B, OSHA Salmonella, Listeria, E.coli, APC, Y & M 48 Hr. \_3-5 Day - Total, Respirable Mold RUSH \_ 24 Hr\_ Short report, ORGANICS - METH E.coli 0157;H7: \*\*Turnaround times establish a laboratory priorilly, subject to laboratory volume and are not guaranteed. Additional feet Sample Volume (L) / Area apply for afterhours, weekends and holidays.\*\* 9 8 # Containers Special Instructions: EM Number (Laboral METALS RCRA 8, Date Time Matrix ( Usa Only) Collected Collected Clierit sample ID number MICROBIDLOGY (Sample ID's most be unique) mm/dd/yy hh/mm a/p 3W 1103U-E Waln 6 8 9 10 (Additional samples shall be listed on attached long form.) Number of samples received: NOTE: REI will analyze becoming samples based upSit twentilition received and will not be responsible for orrors or omissions in calculations resulting from the inaccuracy of original data. By signing dient/company representative agrees that submission of this following samples for requested ansiyals as indicated on this Chain of Custody shall constitute an analytical services agreement with payment terms of NET 30 days, feature to comply with payment terms may result in a 1.5% monthly interest aurabange. Relinquished By: Date/Time: Sample Condition: On Ice Sealed Intact Laboratory Use Only Temp. (F°) Yes / No Yes / No Date/Time: Received By: Carrier: Time 745 Results: Contact Dave Date Su Phone Email Fax Date 11-8-11 Time 9A Initials 4.4 Contact Phone Email Fax Initials < Phone Email Fax Contact hone Email Fax Date Time Initials

## Attachment I

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

# Asbestos Type A = Amosite An = Anthophyllite C = Chrysotile Cr = Crocidolite T = Tremolite Structure Types F = Fiber B = Bundle C = Cluster M = Matrix

ND = no structures detected

= other structure associated with a matrix

NAM = Non Asbestos Mineral

XGB = partly obscured by a grid bar

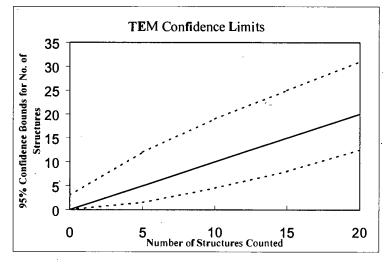
Sizing Conversion

1 length unit = 5 mm on screen = 0.278 micron
1.80 length units = 0.5 micron
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

#### **TEM** Analysts

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bemard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Laboratory name:	REI
Instmment	JEOL 100 CX N S
Voltage (KV)	100 KV
Magnification	(2010X 10KX
Grid opening area (mm2)	0.011
Scale: IL≃	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Tyoe	

Client:	R+R
Sample Tyoe (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	1110
Date received by lab	11-7-11
Lab Job Numben	223763
Lab Sample Number	819880

1
11-7-11
1 4
1.1
AH
Month Analyzed
Date Analyzed

F-Factor Calculation (Indirect Pro	eps Only):
Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filtar (ml)	

Grid	arid Grid Opening Structure No. of Structures Dimensions		Identification Mineral Class				1 = yes, blank = no							
		Туре	Primary	Total	Length	Width		Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	F6-6	<u>an</u>												
	Flo-3	MD			,									
	Elala	DN		Pie	A:	100%	intac	t 5	d'ode	by	5	· :		
	E6-3	20		Rec	N .	Pre	A	·						
3	EYM	$\sim$												
	E4-1	NO					D							
	4-4	ND				K								
					/									
					/	1.								
														·

Laboratory name:	REI
Instrument	JEOL 100 CX N S
Voltage (KV)	100 KV
Magnification	(20) 10KX
Grid opening area (mm2)	0.011
Scale: 1L =	0.28 um
Scale: 1D=	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

R+R
A
1117
11-7-11
223763
819879

Analyzed by	AH
Analysis date	11-7-11
Method (D=Direct, l=Indirect, IA=Indirect, ashed)	۵
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps Only):

Fraction of primary lilter Used	,
Total Resuspension Volume (ml)	
Volume Applied to secondary lilter (ml)	

Data Qd

Grid	Grid Opening	Structure	No. of St	ructures	Dimer	ensions Identification		dentification Mineral Class			·	1 = yes, blank = no		
Gild	Ond Opening	Туре	Primaty	Total	Length	Width	identification	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	FSJU	ND			· .						,			
	F5-1	ND						·						
	E5-4	MD		Pio	A;	lev	d into	act	5%	de	م			
	E5-1	ND		Pie	oB	· Pie	<b> `</b>				٠			
B	64-1	ND				9								
	F4-4	MD							1					
	F4-1	2												
								X						
								10		i				
														·

Laboratory name:	REI
Instrument	JEOL 100 CX N S
Voltage (KV)	100 KV
Magnification	(20)8X 10KX
Grid opening area (mm2)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Fitter Area (mm2)	
QA Type	

Client :	R4R
Samole Tyoe (A=Alr, D=Dust):	A
Air volume (L) or dust area (cm2)	1109
Date received by lab	11-7-11
Lab Job Number:	223763
Lab Sample Number:	819881

F-Factor Calculation (Indirect Pre	eps (	Only):	•
Fraction of primary litter used		•	
Total Resuspension Volume (ml)			
Volume Applied to secondary filter (ml)			

Analyzed by	AH
Analysis date	11-8-11
Method (D=DirecL l=Indirect, IA=Indirect, ashed)	D
Counting miles (ISO, AHERA, ASTM)	AH
Grid storage iocation	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			·	1 = yes, blank = no		
			Primary	Total	Length	Width	Identinoation	Amphibole	·c	NAM	Sketch/Comments	Sketch	Photo	EDS
A	F4-60	VD					•							
	E4.3	2												
	C4-6	J. J.		Pie	oA;	80 %	intau	3-57	vde	مرح	ĺ.			
	C4-3	ND		Re		r Pro	A							
B	636	NO												
	63.3	NO			<u></u>									
	F3.60	M												
·														

## Analytical Procedures - AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

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#### **Equations Used for Calculations**

Area Analyzed,  $mm^2 = \# GO \text{ counted } x \text{ Average } GO \text{ Area } (mm)$ 

Concentration, s/cc =  $\frac{\# \text{ Asbestos Structures}}{\# \text{ GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2)}{\text{Average GO area (mnn}^2)} \times \frac{1L}{1000\text{cc}}$ 

Filter loading, s/mm<sup>2</sup> = # Asbestos structures Area Analyzed (mm<sup>2</sup>)

GO = TEM grid opening